

ABSTRACTTRANSGENIC PLANTS PRODUCING A PAP II PROTEIN

Disclosed are recombinant plant cells, plant cell parts, plant parts and transgenic plants containing a DNA molecule comprising a sequence encoding a Pokeweed  
5 Antiviral Protein (PAP) II protein. PAP II proteins include full length, wild-type PAP II and substantially nontoxic mutants or analogs including fragments thereof truncated at the C-terminus and other PAP II proteins having an intact catalytic active site amino acid residue E172 but that also have at least one amino acid substitution or deletion, and possess anti-viral and/or anti-fungal activity. DNA molecules comprising sequences encoding the  
10 mutants or analogs, as well as the isolated and purified PAP II proteins *per se*, are also disclosed. Methods of identifying nontoxic PAP II mutants are further disclosed.

Transgenic plants that produce a PAP II protein exhibit anti-viral and/or anti-fungal activity. Virtually all flowering plants are included. Seed derived from the transgenic plants are also provided.

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